

Alessandro Margara

Personal Data

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Date of Birth April 1st, 1983
Place of Birth Novara, Italy
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Current and Past Positions

December 2021 – Present **Associate Professor**, *Politecnico di Milano*, Milano.
December 2018 – December 2021 **Assistant Professor (Senior, according to the Italian Law n. 240/2010 - art. 24, par. 3, letter B)**, *Politecnico di Milano*, Milano.
June 2016 – November 2018 **Assistant Professor (Junior, according to the Italian Law n. 240/2010 - art. 24, par. 3, letter A)**, *Politecnico di Milano*, Milano.
February 2014 – May 2016 **Post-doctoral Research Assistant**, *Università della Svizzera Italiana (USI)*, Lugano.
September 2012 – February 2014 **Post-doctoral Research Assistant**, *Vrije Universiteit Amsterdam*, Amsterdam.
March 2012 – August 2012 **Post-doctoral Research Assistant**, *Politecnico di Milano*, Milano.
September 2011 – December 2011 **Visiting Research Scholar**, *Purdue University*, West Lafayette, IN.
Host: Prof. Patrick Eugster
January 2009 – December 2011 **PhD Student**, *Politecnico di Milano*, Milano.
Advisor: Prof. Gianpaolo Cugola
July 2008 – December 2008 **Research Assistant**, *Politecnico di Milano*, Milano.

Education

2009–2011 **PhD in Computer Science and Engineering**, *Politecnico di Milano*, Milano, Advisor: Prof. Gianpaolo Cugola, *Cum Laude*.
2006–2008 **Laurea specialistica in Ingegneria Informatica (equivalent to M.Sc. in Computer Science and Engineering)**, *Politecnico di Milano*, Milano, Advisor: Prof. Gianpaolo Cugola, *110/110*.
2002–2006 **Laurea in Ingegneria Informatica (equivalent to B.Sc. in Computer Science and Engineering)**, *Politecnico di Milano*, Milano.

Highlights

Alessandro Margara's research lab develops new solutions to ease the development of complex distributed software systems, targeting data-intensive applications in particular. Alessandro Margara's research intersects software engineering and distributed systems, proposing novel programming abstractions and implementing them into concrete systems.

To date, Alessandro Margara co-authored more than 60 papers in international journals, conferences, workshops, and books, which received over 3500 citations. His H-index is 26, and his paper "Processing Flows of Information, from Data Stream to Complex Event Processing", ACM Computing Surveys 2012 received more than 1300 citations. (Source: Google Scholar).

Alessandro Margara's PhD was awarded cum laude. His work was awarded with the DEBS 2011 best paper nomination, the DEBS 2014 best paper award, the DEBS 2020 test of time award, and the DEBS 2022 grand challenge performance award.

Alessandro Margara is co-organizer, co-chair, and program committee member of tens of international conferences and workshops. He was general co-chair of DEBS 2021. He is currently member of the steering committee of DEBS. Alessandro Margara served as reviewer for tens of journals and conferences in the area of software engineering and parallel and distributed systems. He was invited participant in 3 dagstuhl seminars and a shonan meeting. He was co-organizer of a dagstuhl seminar on the foundations of composite event recognition.

Alessandro Margara is an enthusiastic lecturer. Over time, he has been main lecturer or co-lecturer of various courses at the bachelor, master, and PhD level at Politecnico di Milano, Vrije Universiteit Amsterdam, and Università della Svizzera Italiana. He was invited lecturer in international seminars and summer schools. He is advising/advised 5 PhD students and 40+ MSc students.

Awards & Recognitions

- 2022 The paper "DEBS Grand Challenge: Analysis of Market Data with Noir" is the winner of the DEBS 2022 Grand Challenge Performance Award.
- 2020 The paper "TESLA - A formally defined event specification language" is the winner of the DEBS 2020 Test of Time Award.
- 2017 Awarded with 3000 Amazon Web Services cloud credits in the AWS Cloud Credits for Research program.
- 2017 Awarded with a NVidia GPU to support research under the NVidia GPU Grant program.
- 2014 Best paper award at the 8th ACM International Conference on Distributed Event-Based Systems (DEBS '14) [28].
- 2012 PhD was awarded Cum Laude [73].
- 2011 Best paper nominee at the 5th ACM International Conference on Distributed Event-Based System (DEBS '11) [20].
- 2009 Recipient of Ph.D. scholarship granted by Italian Ministry of Education, University and Research at Politecnico di Milano (Italy).

Community Service

Organization Committee Membership

- 2022–present **Steering committee member** of the ACM International Conference on Distributed Event-Based Systems (DEBS)
- 2021 **General chair** of the 15th ACM International Conference on Distributed Event-Based Systems (DEBS 2021), Milan, Italy
- 2021 Co-chair of the Workshop on *Real-Time & Stream Analytics in Big Data*. within the IEEE International Conference on Big Data (IEEE BigData 2020), 15–18 December 2021, Orlando, FL, US
- 2020 Co-chair of the Workshop on *Real-Time & Stream Analytics in Big Data*. within the IEEE International Conference on Big Data (IEEE BigData 2020), 10–13 December 2020, Virtual Event
- 2020 Co-organizer of the Workshop on Reasoning about Actions and Events over Streams (RACES) within the 17th International conference on Principles of Knowledge Representation and Reasoning (KR 2020), 12–18 September 2020, Rhodes, Greece
- 2019 Tutorial co-chair for the 13th ACM International Conference on Distributed Event-Based Systems (DEBS 2019)
- 2019 Co-chair of the Workshop on *Real-Time & Stream Analytics in Big Data*. within the IEEE International Conference on Big Data (IEEE BigData 2019), 9–12 December 2019, Los Angeles, CA, USA
- 2018 Doctoral Symposium co-chair for the 12th ACM International Conference on Distributed Event-Based Systems (DEBS 2018)
- 2018 Co-chair of the Workshop on *Real-Time & Stream Analytics in Big Data*. within the IEEE International Conference on Big Data (IEEE BigData 2018), 10–13 December 2018, Seattle, WA, USA
- 2018 Committee Chair of the DEBS ToT (Test of Time) to determine the paper with the highest impact from DEBS 2008. 12th International Conference on Distributed Event-Based Systems (DEBS 2018)
- 2017 Co-chair of the Workshop on *Real-Time & Stream Analytics in Big Data*. within the IEEE International Conference on Big Data (IEEE BigData 2017), 11–14 December 2017, Boston, MA, USA
- 2017 Proceedings chair for the 11th ACM International Conference on Distributed Event-Based Systems (DEBS 2017)
- 2017 Posters and demos co-chair for the 18th ACM/IFIP/USENIX Conference on Middleware (Middleware 2017)
- 2016 Co-chair of the Workshop on *Real-Time & Stream Analytics in Big Data*. within the IEEE International Conference on Big Data (IEEE BigData 2016), 5–8 December 2016, Washington D.C., USA
- 2016 Co-organizer of the symposium *Software engineering meets scientific computing: generality, reusability and performance for scientific software platforms. Part 1: Engineering methodologies and development processes*. within the ACM Platform for Advanced Scientific Computing Conference (PASC 2016), 8–10 June 2016, EPFL Lausanne, Switzerland

- 2016 Co-organizer of the symposium *Software engineering meets scientific computing: generality, reusability and performance for scientific software platforms. Part 2: Performance and scalability requirements*. within the ACM Platform for Advanced Scientific Computing Conference (PASC 2016), 8–10 June 2016, EPFL Lausanne, Switzerland

Editorial Board Membership

- 2017 Section Editor of the Springer Encyclopedia on Big Data Technologies - Section on “Big Stream Processing”
- 2017 Member of the Guest Editorial Board for the Semantic Web Journal, Special Issue on Stream Reasoning

Program Committee Membership

- 2024 44th IEEE International Conference on Distributed Computing Systems (ICDCS 2024)
18TH ACM International Conference on Distributed and Event-Based Systems (DEBS 2024)
IEEE International Conference on Big Data (IEEE BigData 2023)
- 2023 43rd IEEE International Conference on Distributed Computing Systems (ICDCS 2023)
39th IEEE International Conference on Data Engineering (ICDE 2023) Industry and Applications Track
IEEE International Conference on Big Data (IEEE BigData 2023)
- 2022 42nd IEEE International Conference on Distributed Computing Systems (ICDCS 2022)
IEEE International Conference on Big Data (IEEE BigData 2022)
16th ACM International Conference on Distributed Event-Based Systems (DEBS 2022)
- 2021 41st IEEE International Conference on Distributed Computing Systems (ICDCS 2021)
IEEE International Conference on Big Data (IEEE BigData 2021)
47th International Conference on Very Large Data Bases (VLDB 2021) PhD Workshop
First International Workshop on Distributed Multimedia Event Processing (D-MMEP 2021), colocated with ICDCS 2021
27th IEEE International Conference on Parallel and Distributed Systems (ICPADS 2021)
16th International Conference on Software Technologies (ICSOFT 2021)
- 2020 IEEE International Conference on Data Engineering (ICDE 2020)
ACM International Conference on Management of Data (SIGMOD 2020) Demo track
14th ACM International Conference on Distributed Event-Based Systems (DEBS 2020)
- 2019 13th ACM International Conference on Distributed Event-Based Systems (DEBS 2019)
16th Extended Semantic Web Conference (ESWC 2019), Velocity on the Web Track
ACM/IEEE Workshop on Hot Topics of Web of Things (HotWoT 2019)
Workshop on Emerging Trends on Web Velocity and Web of Things (WVoT 2019)
- 2018 1st International Workshop on Big Stream Processing, colocated with the 2018 ACM/IFIP/Usenix International Middleware Conference (Middleware 2018)
12th ACM International Conference on Distributed Event-Based Systems (DEBS 2018)
2nd Workshop on High-Level Declarative Stream Processing (HiDeSt 2018)
13th International Conference on Software Engineering Advances (ICSEA 2018)
15th European Semantic Web Conference (ESWC 2018)
3rd IEEE Internet of Things Design and Implementation (IoTDI 2018)
Web Stream Processing Workshop (RSP 2018), colocated with the Web Conference 2018 (WWW 2018)
8th International Conference on Advanced Communications and Computation (INFO-COMP 2018)
4th International Conference on Advances and Trends in Software Engineering (SOFT-ENG 2018)

- 2017 2nd Workshop on Active Middleware on Modern Hardware (Active), colocated with the 18th ACM/IFIP/USENIX International Conference on Middleware (Middleware 2017)
1st International Workshop on Web Stream Processing (WSP 2017), colocated with the 16th International Semantic Web Conference (ISWC 2017)
11th International Conference on Advanced Engineering Computing and Applications in Sciences (ADVCOMP 2017)
12th International Conference on Software Engineering Advances (ICSEA 2017)
3rd International Conference on Advances and Trends in Software Engineering (SOFT-ENG 2017)
2nd IEEE Internet of Things Design and Implementation (IoTDI 2017)
- 2016 3rd International Workshop on Stream Reasoning (SR 2016)
- 2015 9th International Web Rule Symposium (RuleML 2015)
9th International Web Rule Symposium (RuleML 2015) Doctoral Consortium
8th International Conference on Distributed Event-Based Systems (DEBS 2015) Demo & Poster Track
4th International Workshop on Ordering and Reasoning (OrdRing 2015)
- 2014 3rd International Workshop on Ordering and Reasoning (OrdRing 2014)
- 2013 7th ACM International Conference on Distributed Event-Based Systems (DEBS 2013)
13th IEEE/ACM International Symposium on Cluster, Cloud, and Grid Computing – Doctoral Symposium (CCGrid PhD 2013)
- 2012 6th ACM International Conference on Distributed Event-Based Systems (DEBS 2012)

Reviewer Service

- 2023 Reviewer for VLDB Journal; ACM Transactions on Database Systems (TODS); IEEE Software; Journal of Systems and Software (JSS); Software and System Modeling Journal (SoSyM); International Journal of Computer and Telecommunications Networking; Cluster Computing
- 2022 Reviewer for VLDB Journal; IEEE Transactions on Services Computing (TSC); IEEE Transactions on Cloud Computing (TCC); Journal of Systems and Software (JSS); Information Systems; Future Generation Computer Systems; Science of Computer Programming;
- 2021 Reviewer for ACM Transactions on Database Systems (TODS); IEEE Transactions on Services Computing (TSC); IEEE Transactions on Cloud Computing (TCC); Information Systems
- 2020 Reviewer for IEEE Transactions on Parallel and Distributed Systems (TPDS); ACM SIGMOD Record; Formal Aspects of Computing (FOAC); Future Generation Computer Systems; Journal of Big Data; Information Systems; Science of Computer Programming; Applied Sciences
- 2020 External reviewer for IEEE International Conference on Cloud Computing, CLOUD 2020
- 2019 Reviewer for ACM Computing Surveys; IEEE Transactions on Parallel and Distributed Systems (TPDS); IEEE Transactions on Dependable and Secure Computing (TDSC); ACM Transactions on Autonomous and Adaptive Systems (TAAS); Journal of Big Data; Journal of Parallel and Distributed Computing (JPDC); Journal of Systems and Software (JSS); Journal of Software: Practice and Experience; Journal of Visual Languages and Computing (JVLC); Future Generation Computer Systems; Information and Software Technology; Scientific Programming

- 2018 Reviewer for ACM Computing Surveys; IEEE Transactions on Cloud Computing (TCC); Journal of Systems and Software (JSS); Journal of Parallel and Distributed Computing (JPDC); Journal of Big Data; Semantic Web Journal; Onward! 2018; International Journal of Geo-Information (IJGI, Special Issue on Spatial Stream Processing); Design Automation for Embedded Systems (DAEM); Symmetry; International Journal of Parallel, Emergent and Distributed Systems (IJPEDS); Information and Software Technology; Future Generation Computer Systems
- 2017 Reviewer for IEEE Transactions on Parallel and Distributed Systems (TPDS); IEEE Transactions on Knowledge and Data Engineering (TKDE); IEEE Transactions on Systems, Man, and Cybernetics: Systems; Journal of Systems and Software; Journal of Engineering and Technological Sciences; Semantic Web Journal; Future Generation Computer Systems; Journal of Big Data
- 2017 External Reviewer for 7th International Conference on Cloud Computing and Services Science (CLOSER 2017)
- 2016 Reviewer for IEEE Transactions on Software Engineering (TSE); IEEE Transactions on Parallel and Distributed Systems (TPDS); IEEE Transactions on Industrial Informatics (TII); IEEE Transactions on Big Data (TBD); ACM Transactions on Autonomous and Adaptive Systems (TAAS); Computer Networks Journal (COMNET); Journal of Systems and Software (JSS); Cognitive Computation Journal; IEEE Internet of Things Journal (IoT-J); Journal of Parallel and Distributed Computing (JPDC); Expert Systems With Applications (ESWA); Engineering Science and Technology, an International Journal (JESTECH); Big Data Research; Sensors; Journal of Sensors
- 2016 External Reviewer for 20th International Conference on Knowledge Engineering and Knowledge Management (EKAW 2016);
- 2015 Reviewer for IEEE Transactions on Big Data (TBD); IEEE Transactions on Industrial Informatics; IEEE Transactions on Services Computing (TSC); IEEE Transactions on Software Engineering (TSE); Computer Networks Journal (COMNET); Journal of Systems and Software (JSS); Journal of Parallel and Distributed Computing (JPDC); Expert Systems With Applications (ESWA); Information Journal
- 2015 External reviewer the 9th ACM International Conference on Distributed Event-Based Systems (DEBS 2015)
- 2014 Reviewer for IEEE Transactions on Software Engineering (TSE); IEEE Internet Computing Journal; Computer Languages, Systems and Structures Journal; Journal of Systems and Software (JSS); Journal of Parallel and Distributed Computing (JPDC)
- 2014 External reviewer for 8th ACM International Conference on Distributed Event-Based Systems (DEBS 2014); 14th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (CCGrid 2014)
- 2013 Reviewer for ACM Transactions On Internet Technology (ToIT), Special Issue on Event Recognition; ACM Transactions On Software Engineering And Methodology (TOSEM); International Journal of Big Data Intelligence (IJBDI); Journal of Parallel and Distributed Computing (JPDC); Journal of Systems and Software (JSS)
- 2013 External reviewer for 20th International Conference on High Performance Computing (HiPC 2013)
- 2012 Reviewer for Journal of Systems and Software (JSS)
- 2012 External reviewer for 10th International Conference on Service Oriented Computing (ICSOC 2012)
- 2011 External reviewer for 5th ACM International Conference on Distributed Event-Based Systems (DEBS 2011)

- 2010 External reviewer for 4th ACM International Conference on Distributed Event-Based Systems (DEBS 2010); 18th International Symposium on the Foundations of Software Engineering (FSE 2010) International Journal of Systems and Service-Oriented Engineering (IJSSOE)

Other

- 2019 Nominated member of the DEBS ToT (Test of Time) Award Committee to determine the paper with the highest impact from DEBS 2009. 13th International Conference on Distributed Event-Based Systems (DEBS 2019)
- 2019 Invited participant in the Shonan Meeting 149 on Programming Languages for Distributed Systems
- 2018 Co-organizer of the Dagstuhl Seminar number 20071 on the Foundations of Composite Event Recognition. February, 2020
- 2017 Nominated member of the DEBS ToT (Test of Time) Award Committee to determine the paper with the highest impact from DEBS 2007. 11th International Conference on Distributed Event-Based Systems (DEBS 2017)
- 2017 Invited participant in the Dagstuhl Seminar 17441 on Big Stream Processing Systems
- 2016 Invited participant in the Dagstuhl Seminar 16341 on Integrating Process-Oriented and Event-Based Systems
- 2013 Member of the RDF Stream Processing Community Group, W3C

Institutional Service

- 2023 – 2024 Member of commissione didattica (advisory board for rules and regulations related to teaching activities), Politecnico di Milano.
- 2023 – present Member of collegio docenti (committee) for the PhD in Information Technology, Politecnico di Milano.
- 2023 – present Member of the scientific committee for the Computer Science and Engineering track of the Honours Programma in Information Technology, Politecnico di Milano.
- 2023 Member of the committee evaluating the requests for admission to the PhD in Information Technology, Politecnico di Milano.
- 2022 – present Member of the committee evaluating the requests for admission to the M.Sc. in Computer Science and Engineering, Politecnico di Milano.

Project Participation and Funding

Participation to projects. When indicated, funding refers to the amount specifically conferred to Alessandro Margara's research group.

- 2023–2024 Innovation grant (150k €) “COMET - Co-simulation of Multi-energy systems for Energy Transition” within the ICSC Italian Research Center on High Performance Computing, Big Data and Quantum Computing, Spoke 6, to a co-simulation platform to support planning and operation of multi-energy systems. Role: co-applicant, co-PI.
- 2023–2025 Extended partnership (200k €) “NEST - Network 4 Energy Sustainable Transition” to develop sustainable technologies for the conversion and use of renewable energy sources. Role: coordinator of Spoke 8 for the Dipartimento di Elettronica, Informazione e Bioingegneria.

- 2023–2025 Italian PRIN project “COBOL” - COmmunity-Based Organized Littering” to enable the automated localization and identification of abandoned littering. Role: scientific contributor.
- 2023–2025 Italian PRIN project “QUASAR” - QUAntum software engineering for Secure, Affordable, and Reliable systems” to enable novel methods and instruments that enable quantum software engineering. Role: scientific contributor.
- 2018–2022 Italian PRIN project “SISMA: Solutions for Engineering Microservices Architectures” to foster the quality development, - deployment, and operation of microservice-based applications. Role: scientific contributor.
- 2019–2021 EU regional development project “LombHeat” to identify sustainable solutions for heating systems. Role: scientific contributor.
 - 2021 Industry project for SNAM PROMIS to analyze data related to uncertainty in measuring gas consumption. Role: scientific contributor.
 - 2019 Teaching contract (20k €) with Ericsson Italia for a course on “Development of concurrent and scalable software (3rd edition)”. Role: organizer and co-lecturer.
 - 2018 Teaching contract (20k €) with Ericsson Italia for a course on “Development of concurrent and scalable software (2nd edition)”. Role: organizer and co-lecturer.
 - 2017 Teaching contract (15k €) with Ericsson Italia for a course on “Development of concurrent and scalable software”. Role: organizer and co-lecturer.
 - 2017 NVidia academic program (GPU grant), project “High performance processing of streaming data on parallel hardware” to study GPU-based solutions for stream processing applications. Role: main applicant.
 - 2017 Amazon AWS research credit (3k €), project “High performance distributed processing of streaming data” to study Cloud-based solutions for stream processing applications. Role: main applicant.
 - 2017 EIT digital cities action line, innovation activity (50k €) “Smart Safety in Smart Cities” to build a smart prediction and notification system to alert citizens in the case of potential hazards. Role: scientific contributor.
- 2015–2016 Swiss national project “PASC. Angiogenesis in Health and Disease: in-vivo and in-silicio” to define new computational techniques to investigate the role of multiscale flow phenomena in angiogenesis as enabled by the capabilities of High Performance Computing. Role: scientific contributor.
- 2014–2015 Swiss national project “DyStaCCo: Dynamic and Static Analysis Combined for Code Coverage”, investigating automatic dataflow testing qualitatively and quantitatively, combining static and dynamic analysis to improve the coverage of relevant targets. Role: scientific contributor and as a supervisor for a PhD student.
- 2012–2014 Dutch national project “Commit P20 – IV-E: e-Infrastructure Virtualization for e-Science Applications”, investigatigating how to design a programmable e-Science architecture, describing the infrastructure components and optimizing them for typical usage scenarios. Role: scientific contributor.
- 2012–2014 Project “Green Move”, funded by Regione Lombardia to promote sustainable mobility in large cities by designing, implementing, and evaluating novel approaches for sharing electric vehicles in the city of Milan. Role: scientific contributor.
- 2009–2012 ERC Advanced Investigator Grant “SMSCom. Self Managing Situated Computing” to develop a consistent, integrated, and homogeneous set of methods and tools for the design, validation, and operation of dependable self-managing situational software. Role: scientific contributor.

Teaching Activity

- Fall 2023 **Teaching assistant**, *Politecnico di Milano*, Milano, Italy.
Teaching Assistant for the course “Networked Software for Distributed Systems”
- Fall 2023 **Teaching Assistant**, *Politecnico di Milano*, Milano, Italy.
Teaching Assistant for the course “Distributed Systems”
- Spring 2023 **Lecturer**, *Politecnico di Milano*, Milano, Italy.
Lecturer for the course “Prova Finale (Ingegneria del Software)”
- May 2023 **Lecturer**, Milano, Italy.
Lecturer for the master on “Digital Platform Technologies”, organized by CEFRIEL, Politecnico di Milano
- Fall 2022 **Lecturer**, *Politecnico di Milano*, Milano, Italy.
Lecturer for the course “Ingegneria del Software”
- Fall 2022 **Teaching assistant**, *Politecnico di Milano*, Milano, Italy.
Teaching Assistant for the course “Networked Software for Distributed Systems”
- Fall 2022 **Teaching Assistant**, *Politecnico di Milano*, Milano, Italy.
Teaching Assistant for the course “Distributed Systems”
- Spring 2022 **Lecturer**, *Politecnico di Milano*, Milano, Italy.
Lecturer for the course “Prova Finale (Ingegneria del Software)”
- Fall 2021 **Lecturer**, *Politecnico di Milano*, Milano, Italy.
Lecturer for the course “Ingegneria del Software”
- Fall 2021 **Teaching assistant**, *Politecnico di Milano*, Milano, Italy.
Teaching Assistant for the course “Middleware Technologies for Distributed Systems”
- Fall 2021 **Teaching Assistant**, *Politecnico di Milano*, Milano, Italy.
Teaching Assistant for the course “Distributed Systems”
- May 2021 **Lecturer**, Milano, Italy.
Lecturer for the master on “Digital Platform Technologies”, organized by CEFRIEL, Politecnico di Milano
- April 2021 **Lecturer**, Milano, Italy.
Lecturer for the master on “Digital Technologies for Innovation”, organized by CEFRIEL, Politecnico di Milano
- Spring 2021 **Lecturer**, *Politecnico di Milano*, Milano, Italy.
Lecturer for the course “Prova Finale (Ingegneria del Software)”
- Fall 2020 **Teaching assistant**, *Politecnico di Milano*, Milano, Italy.
Teaching Assistant for the course “Middleware Technologies for Distributed Systems”
- Fall 2020 **Lecturer**, *Politecnico di Milano*, Milano, Italy.
Lecturer for the course “Ingegneria del Software”
- Fall 2020 **Teaching Assistant**, *Politecnico di Milano*, Milano, Italy.
Teaching Assistant for the course “Distributed Systems”
- July 2020 **Lecturer**, Milano, Italy.
Lecturer for the master on “Cloud Data Architecture”, organized by BIP and CEFRIEL, Politecnico di Milano
- Spring 2020 **Lecturer**, *Politecnico di Milano*, Milano, Italy.
Lecturer for the course “Prova Finale (Ingegneria del Software)”
- February 2020 **Lecturer**, *Nokia*, Milano, Italy.
Lecturer for the course “Software Development for Big Data Platforms”

- Fall 2019 **Lecturer**, *Politecnico di Milano*, Milano, Italy.
Lecturer for the course “Middleware Technologies for Distributed Systems”
- Fall 2019 **Lecturer**, *Politecnico di Milano*, Milano, Italy.
Lecturer for the course “Ingegneria del Software”
- Fall 2019 **Teaching Assistant**, *Politecnico di Milano*, Milano, Italy.
Teaching Assistant for the course “Distributed Systems”
- June – September 2019 **Proposer and Lecturer**, *Ericsson Italia*, Genova, Italy.
Proposer and Lecturer for the “Software Academy” course “Development of concurrent and scalable software”, 3rd edition
- May 2019 **Lecturer**, *Moxoff*, Milano, Italy.
Lecturer for the course “Big Data Processing with Apache Spark”
- Spring 2019 **Proposer and Lecturer**, *Politecnico di Milano*, Milano, Italy.
Proposer and Lecturer for the course “Stream and Complex Event Processing” for PhD Students, with Prof. G. Cugola and E. Della Valle
- Spring 2019 **Lecturer**, *Politecnico di Milano*, Milano, Italy.
Lecturer for the course “Prova Finale (Ingegneria del Software)”
- July 2018 **Invited Lecturer**, *4th International Summer School for Big Data and Machine Learning*, Leipzig, Germany.
- Fall 2018 **Lecturer**, *Politecnico di Milano*, Milano, Italy.
Lecturer for the course “Middleware Technologies for Distributed Systems”
- Fall 2018 **Lecturer**, *Politecnico di Milano*, Milano, Italy.
Lecturer for the course “Ingegneria del Software”
- Fall 2018 **Teaching Assistant**, *Politecnico di Milano*, Milano, Italy.
Teaching Assistant for the course “Distributed Systems”
- June 2018 – December 2018 **Proposer and Lecturer**, *Ericsson Italia*, Genova, Italy.
Proposer and Lecturer for the “Software Academy” course “Development of concurrent and scalable software”, 2nd edition
- May 2017 – May 2018 **Tutor**, *Politecnico di Milano*, Milano, Italy.
Tutor for the Master “Development of Innovative Software Products”
- December 2017 **Lecturer**, *Prisma Testing*, Milano, Italy.
Lecturer for the course “Version control with Git”.
- Fall 2017 **Lecturer**, *Politecnico di Milano*, Milano, Italy.
Lecturer for the course “Informatica A”
- Fall 2017 **Teaching Assistant**, *Politecnico di Milano*, Milano, Italy.
Teaching Assistant for the course “Distributed Systems”
- July – December 2017 **Proposer and Lecturer**, *Ericsson Italia*, Genova, Italy.
Proposer and Lecturer for the “Software Academy” course “Development of concurrent and scalable software”.
- Fall 2017 **Lecturer**, *Politecnico di Milano*, Milano, Italy.
Lecturer for the course “Informatica A”
- Fall 2016 **Teaching Assistant**, *Politecnico di Milano*, Milano, Italy.
Teaching Assistant for the course “Distributed Systems”
- Spring 2016 **Invited Lecturer**, *Technische Universität Darmstadt*, Darmstadt, Germany.
External Lecturer for the course “Concepts and Technologies for Distributed Systems and Big Data Processing”
- Fall 2015 **Lecturer**, *Università della Svizzera Italiana (USI)*, Lugano, Switzerland.
Lecturer for the course “Computer Networking”

- Spring 2015 **Proposer and Lecturer**, *Politecnico di Milano*, Milano, Italy.
Proposer and Lecturer for the course “Stream and Complex Event Processing” for PhD Students, with Prof. G. Cugola and E. Della Valle
- Fall 2013 **Lecturer**, *Vrije Universiteit Amsterdam*, Amsterdam, The Netherlands.
Lecturer for the course “Systems Programming”
- Spring 2013 **Proposer and Lecturer**, *Politecnico di Milano*, Milano, Italy.
Proposer and Lecturer for the course “Stream and Complex Event Processing” for PhD Students, with Prof. G. Cugola and E. Della Valle
- Spring 2013 **Lecturer**, *Vrije Universiteit Amsterdam*, Amsterdam, The Netherlands.
Lecturer for the course “Academic English”
- Fall 2012 **Teaching Assistant**, *Politecnico di Milano*, Milano, Italy.
Teaching Assistant for the course “Distributed Systems”
- Fall 2009 **Teaching Assistant**, *Politecnico di Milano*, Milano, Italy.
Teaching Assistant for the course “Distributed Systems”
- Spring 2009 **Teaching Assistant**, *Politecnico di Milano*, Milano, Italy.
Teaching Assistant for the course “Software Engineering”
- Fall 2008 **Teaching Assistant**, *Politecnico di Milano*, Milano, Italy.
Teaching Assistant for the course “Distributed Systems”

PhD Supervision

- November 2023 – Arianna Deagoni, PhD Student, “Software Architectures for Intensive Applications”.
Politecnico di Milano.
- November 2022 – Luca De Martini, PhD Student, “Scalable Data Intensive Applications”. Politecnico di Milano.
- May 2017 – Hassan Nazeer Chaudhry, PhD Student, “Distributed Dynamic Graph Processing”.
October 2022 Advisor: prof. Matteo Rossi Politecnico di Milano.
- June 2016 – Lorenzo Affetti, PhD Student, “New Horizons for Stream Processing”. Advisor: prof.
February 2019 G. Cugola, Politecnico di Milano.
- June 2016 – Irma Metra, PhD Student, “Design, Verification and Implementation of a High Performance Stream Reasoning System”. Advisor: prof. G. Cugola, Politecnico di Milano.
December 2016
- September 2014 – Francesco Bianchi, PhD Student, “Automated Testing of Distributed Systems”. Advisor: prof. M. Pezzè, University of Lugano (USI).
– June 2016
- February 2014 – Mattia Vivanti, PhD Student, “Dynamic and Static Analysis Combined for Code Coverage”. Advisor: prof. M. Pezzè, University of Lugano (USI).
December 2015
- September 2013 – Emanuele Panigati, PhD Student, Project on “Inference on Dynamic Data”. VU University, Amsterdam. Advisor: prof. L. Tanca, Politecnico di Milano
– March 2014

PhD Defenses

- 2023 Member of the Doctorate Examination Committee for Matteo Orlando. Phd thesis “Distributed platform for multi-model co-simulations in smart grids”. Politecnico di Torino, Italy.
- 2018 Member of the Doctorate Examination Committee for Yulia Evkina, as Pre-Examiner. PhD thesis on “A Hybrid Context-aware Middleware for Relevant Information Delivery in Multi-Role and Multi-User Monitoring Systems: an Application to the Building Management Domain”. Tampere University of Technology, Finland.
- 2017 Member of the Doctorate Examination Committee for Mikko Rinne. PhD thesis on “Event Processing using Semantic Web Technologies”. Aalto University, Finland.

2012 Member of the Doctorate Examination Committee for Jacobo Urbani. Phd thesis “On Web Scale Reasoning”. Vrije Universiteit Amsterdam, Netherlands.

MSc Supervision

- 2023 Vito Saverio Zezza, MSc Thesis, “A Distributed Relational Query Serving System Based on the Actor Model”. Politecnico di Milano.
- 2023 Francesco Scandale, MSc Thesis, “CI/CD - Automation of the Deployment Process”. Politecnico di Milano.
- 2023 Matteo Merz, MSc Thesis, “Actie: an actor framework for stateful serverless functions”. Politecnico di Milano.
- 2023 Davide Canali, MSc Thesis, “Data Analysis Methods on Noir: a Distributed Stream Processing Framework”. Politecnico di Milano.
- 2023 Adalberto Trevisani, Christopher Volpi, MSc Thesis, “Parallel Implementation of Machine Learning Algorithms and Neural Networks with Noir”. Politecnico di Milano.
- 2023 Emmanuele Lattuada, MSc Thesis, “State Persistence in Noir”. Politecnico di Milano.
- 2023 Sanja Kosier, MSc Thesis, “Nubes+: Fault Tolerant Object-Oriented Programming for Stateful Serverless Functions”. Politecnico di Milano.
- 2023 Mattia Redaelli, Flavio Rizzoglio, MSc Thesis, “Enhancing Kabis: introducing consumer groups for an improved load-balancing performance”. Politecnico di Milano.
- 2023 Edoardo Cappelletti, Stefano Brunati, MSc Thesis, “Menhir: semi-automatic tool for monolith to microservices code rewriting”. Politecnico di Milano.
- 2023 Arianna Dragoni, MSc Thesis, “A model and a methodology for designing data-intensive architectures”. Politecnico di Milano.
- 2023 Joseph Di Salvo, MSc Thesis, “ABCC - Automated Backward Compatibility Checker”. Politecnico di Milano.
- 2023 Kinga Anna Marek, MSc Thesis, “Nubes: object-oriented programming for stateful serverless functions”. Politecnico di Milano.
- 2023 Gianmarco Vuolo, MSc Thesis, “Optimization of functional coverage closure”. Politecnico di Milano.
- 2023 Leonardo Barilani, Giampietro Fabrizio Bonaccorsi, MSc Thesis, “From the Edge to the Cloud, an innovative approach to hybrid computing”. Politecnico di Milano.
- 2023 Daniele Locatelli, MSc Thesis, “A state-of-the-art analysis of GPU computing with Rust”. Politecnico di Milano.
- 2023 Alessandro Fulgini, MSc Thesis, “Comparing two approaches for distributed SPARQL querying: vertex-centric graph exploration and edge-centric relational joins”. Politecnico di Milano.
- 2023 Leonardo Totaro, MSc Thesis, “Oracle Metric Collector and Analysis: A Toolkit to Enable Cloud Migration and Databases Consolidation”. Politecnico di Milano.
- 2022 Matteo Secco, MSc Thesis, “Kabis: a platform for event-based communication with configurable trade-off between trust guarantees and performance”. Politecnico di Milano.
- 2022 Gayathri Prakash Menakath, MSc Thesis, “A unified platform for monitoring metrics and logs”. Politecnico di Milano.

- 2022 Luca De Martini, MSc Thesis, “Analysis of Market Data with Noir: Real World Application and Improvements of a Streaming and Batch Processing Framework”. Politecnico di Milano.
- 2022 Davide Cocco, MSc Thesis, “Cromlech: a tool for semiautomatic monolith decomposition into microservices”. Politecnico di Milano.
- 2021 Virginia Capone, Yi Ya Ivan Chen, Simone Corti, Luigi Fusco, Pablo Pozo, Silvia Trimarchi, Francesco Zanon, ASP multi-disciplinary project “SHADER”. Principal tutor. Politecnico di Milano.
- 2021 Dennis Motta, MSc Thesis, “Location-aware and stateful serverless computing on the edge”. Politecnico di Milano.
- 2021 Andrea Crivellin, Gabriele Guelfi, MSc Thesis, “A distributed and scalable vertex-centric SPARQL engine: design, implementation and optimization”. Politecnico di Milano.
- 2021 Vladimir Sladojević, MSc Thesis, “Simulating financial data feeds for benchmarking event-processing systems”. Politecnico di Milano.
- 2021 Lorenzo Romanò, MSc Thesis, “Benchmarking and critical analysis of distributed data processing platforms”. Politecnico di Milano.
- 2021 Edoardo Morassutto, Marco Donadoni, MSc Thesis, “Noir: Design, Implementation and Evaluation of a Streaming and Batch Processing Framework”. Politecnico di Milano.
- 2021 Sudarshan De, MSc Thesis, “Nexmark Benchmarking Analysis using Apache Kafka”. Politecnico di Milano.
- 2021 Mohamad Nezam, MSc Thesis, “Nexmark Benchmarking Analysis Using Apache Spark”. Politecnico di Milano.
- 2021 Nevena Kotlaja, MSc Thesis, “NeX: a Vertex-Centric SPARQL Engine”. Politecnico di Milano.
- 2021 Jefimija Zivkovic, MSc Thesis, “FlowGraph: Integrating Temporal Pattern Recognition in a Graph Processing Engine”. Politecnico di Milano.
- 2021 Davide Giuseppe Siciliano, MSc Thesis, “Large-Scale Graph Processing Frameworks: Analysis and Performance Evaluation”. Politecnico di Milano.
- 2021 Fabio Codiglioni, MSc Thesis, “VERNE: a Vertex-Centric SPARQL Engine”. Politecnico di Milano.
- 2021 Simone Staffa, MSc Thesis, “Pangaea: Semi-Automatic Monolith Decomposition into Microservices”. Politecnico di Milano.
- 2020 Nicolò Felicioni, MSc Thesis, “A Unifying Modeling Framework for Data-Intensive Systems”. Politecnico di Milano, Milano.
- 2020 Alessio Fino, MSc Thesis, “Design, Implementation and Performance Analysis of RStream: a Library for Distributed Stream and Batch Processing”. Politecnico di Milano.
- 2020 Nandakumar Nandaja Varma, MSc Thesis, “Workflow-Based Orchestrations for Serverless Workloads with Ephemeral Storage”. Politecnico di Milano.
- 2020 Zerihun Yisaq Equbay, MSc Thesis, “Alarm Handling in Building Automation and Control Systems”. Politecnico di Milano.
- 2020 Nikola Vuković, MSc Thesis, “Dataflow Abstractions for Serverless Computing”. Politecnico di Milano.

- 2020 Pietro Daverio, MSc Thesis, “Design and Implementation of FlowGraph, a Distributed Framework for Temporal Pattern Recognition in Graph Data Structures”. Politecnico di Milano.
- 2020 Marija Predarska, “Design and Implementation of a Software that Controls a Hardware System Based on Sensors Data”. Politecnico di Milano.
- 2019 Ivan Vrsajkov, MSc Thesis, “Design and Implementation of an Efficient Distributed Stream Processing System with MPI”. Politecnico di Milano.
- 2019 Stefano Cilloni, MSc Thesis, “Towards a Unifying Modeling Framework for Data-Intensive Tools”. Politecnico di Milano.
- 2019 Alexander Nemirovskiy, MSc Thesis, “Distributed Model Checking: Design and Implementation in Different Distributed Computing Frameworks”. Politecnico di Milano.
- 2019 Francesco Larghi, MSc Thesis, “LLAMA – A System for Log Management and Analysis on a Complex Distributed Environment”. Politecnico di Milano.
- 2017 Samuele Di Leva, MSc Thesis, “Using Machine Learning Techniques to Automatically Derive Complex Event Processing Rules”. Advisor: prof. G. Cugola, prof. M. Matteucci, Politecnico di Milano.
- 2017 Dario Collavini, MSc Thesis, “Integrating SPARQL into TESLA to Achieve Stream Reasoning”. Advisor: prof. G. Cugola, Politecnico di Milano.
- 2016 Angelo Di Pilla, MSc Thesis, “Combining Streaming Events with Static Data in the Complex Event Processing Tool T-Rex”. Advisor: prof. G. Cugola, Politecnico di Milano.
- 2016 Claudio Sanna, MSc Thesis, “High-Performance Stream Reasoning: a Highly Parallel Implementation of C-SPARQL in CUDA”. Advisor: prof. G. Cugola, Politecnico di Milano.
- 2014 Simone Bernasconi, MSc Thesis “Mobile Distributed Reactive Programming with Consistency Guarantees”. Advisor: prof. C. Ghezzi, University of Lugano (USI).
- 2012 Andrea Marzorati, MSc Thesis “StoREX : un Middleware di Complex Event Processing con Capacità di Storage”. Advisor: prof. G. Cugola, Politecnico di Milano
- 2012 Maria Cristina Di Santo, MSc Thesis “Complex Event Processing Under Uncertainty: Model, Implementation and Evaluation”. Advisor: prof. G. Cugola, Politecnico di Milano
- 2011 Alberto Negrello, MSc Thesis “Implementazione e Analisi di Protocolli per il Rilivamento Distribuito di Eventi Complessi”. Advisor: prof. G. Cugola, Politecnico di Milano
- 2011 Francesco Feltrinelli, MSc Thesis “Human-Oriented Event Processing: Human Interactions in Complex Event Processing”. Advisor: prof. G. Cugola, Politecnico di Milano
- 2011 Daniele Bruno Bottelli, MSc Thesis “Algoritmi di Forwarding per Hardware Parallelo”. Advisor: prof. G. Cugola, Politecnico di Milano.
- 2010 Luca Mantovani, MSc Thesis “CCBR-MS: un Protocollo per Interrogazioni Distribuite in WSN”. Advisor: prof. G. Cugola, Politecnico di Milano

Formal Presentations

- December 2023 *Combining Expressivity and Performance in Distributed Data Processing*, Keynote speech at the 8th Workshop on Real-time Stream Analytics, Stream Mining, CER/CEP & Stream Data Management in Big Data. IEEE BigData. Sorrento, Italy.
- September 2023 *Making Data Analysis More Efficient with Noir*, BigHPC2023: Special Track on Big Data and High-Performance Computing, 2nd Italian Conference on Big Data and Data Science (ITADATA 2023). Naples, Italy.

- August 2023 *Compute Continuum: the Missing Abstraction in Data-Intensive Systems*, Keynote speech at the International Workshop on Scalable Compute Continuum (WSCC 2023), co-located with the 29th International European Conference on Parallel and Distributed Computing (Euro-Par 2023). Limassol, Cyprus.
- June 2023 *What the history of event-based systems tells you about your PhD*, Keynote speech at the ACM International Conference on Distributed Event-Based Systems Doctoral Symposium (DEBS 2023).
- June 2022 *Tutorial: A Unifying Model for Distributed Data-Intensive Systems*, Tutorial at the ACM International Conference on Distributed Event-Based Systems (DEBS 2022).
- December 2021 *RStream: Simple and Efficient Batch and Stream Processing at Scale*, Workshop on Real-time Stream Analytics, Stream Mining, CER/CEP & Stream Data Management in Big Data. Online.
- December 2021 *Temporal Pattern Recognition in Graph Data Structures*, Workshop on Real-time Stream Analytics, Stream Mining, CER/CEP & Stream Data Management in Big Data. Online.
- September 2020 *Accountable Decentralized Event Reasoning Using Blockchains*, Workshop on Reasoning about ACtions and Events over Streams, (RACES@KR 2020). Online.
- July 2020 *TESLA - A formally defined event specification language*, Test of Time Award Speech, 14th International Conference on Distributed Event-Based Systems (DEBS2020). Online.
- May 2019 *Managing Dynamic Data*, Shonan Meeting on Programming Languages for Distributed Systems. NII Shonan (Japan).
- July 2018 *Managing Streams of Data*, **Invited Lecture**, 4th International Summer School for Big Data, University of Leipzig, (Germany).
- June 2018 *Efficient Temporal Reasoning on Streams of Events with DOTR*, 15th Extended Semantic Web Conference (ESWC 2018). Heraklion, Crete, Greece.
- October 2017 *FlowDB: Integrating Stream Processing and Consistent State Management*, Talk at the Dagstuhl Seminar on Big Stream Processing Systems, Dagstuhl (Germany).
- June 2017 *Complex Event Recognition Languages*, with Alexander Artikis, Matthias Weidlich, Martin Ugarte and Stijn Vansummeren, Tutorial at the 11th International Conference on Distributed Event-Based Systems (DEBS 2017), Barcelona (Spain).
- August 2016 *Managing Streams of Events: an Overview*, Tutorial at the Dagstuhl Seminar on Combining Process Oriented and Event-Based Systems, **Invited Talk**, Dagstuhl (Germany).
- June 2016 *Taming Velocity and Variety Simultaneously in Big Data with Stream Reasoning*, with Daniele Dell'Aglio, Tutorial at the 10th International Conference on Distributed Event-Based Systems (DEBS 2016), Irvine CA (USA).
- May 2016 *Managing Streams of Data: Lessons Learned and Open Challenges*, **Invited Talk**, TU Darmstadt (Germany).
- February 2016 *Managing Streams of Data: Lessons Learned and Open Challenges*, **Invited Talk**, Ca' Foscari University of Venice, Venice (Italy).
- July 2015 *Managing Streams of Data: Lessons Learned and Open Challenges*, **Invited Talk**, Politecnico di Milano, Milano (Italy).
- June 2015 *Efficient Analysis of Event Processing Applications*, 9th International Conference On Distributed Event-Based Systems (DEBS 2015). Oslo (Norway).

- May 2015 *Reactive Programming: A Walkthrough*, with G. Salvaneschi and G. Tamburrelli. Technical Briefing at the 37th International Conference on Software Engineering (ICSE 2015). Firenze (Italy).
- April 2015 *Toward an Intelligent Event-Based Communication Infrastructure: Lessons Learned and Open Challenges*, **Invited Talk**, Fondazione Bruno Kessler (FBK). Trento (Italy).
- May 2014 *Learning From the Past: Automated Rule Generation for Complex Event Processing*, 8th International Conference On Distributed Event-Based Systems (DEBS 2014). Mumbai (India).
- May 2014 *We have a DREAM: Distributed Reactive Programming with Consistency Guarantees*, 8th International Conference On Distributed Event-Based Systems (DEBS 2014). Mumbai (India).
- November 2013 *Large Scale Reasoning over Dynamic Data*, COMMIT P20 Meeting, UvA, Amsterdam (The Netherlands).
- July 2013 *Toward an Intelligent Event-Based Communication Infrastructure: Lessons Learned and Open Challenges*, **Invited Talk**, TU Darmstadt (Germany).
- December 2012 *High-Performance Location-Aware Publish-Subscribe on GPUs*, 13th International Conference On Middleware (Middleware 2012). Montreal (Canada).
- May 2012 *Combining Expressiveness and Efficiency in a Complex Event Processing Middleware*, **Invited Talk**, VU Amsterdam, Amsterdam (The Netherlands).
- February 2012 *Combining Expressiveness and Efficiency in a Complex Event Processing Middleware*, PhD Thesis Defense, Politecnico di Milano, Milano (Italy).
- October 2011 *Adopting GPUs for Low Latency Event Processing*, Distributed Programming Group Seminars, Purdue University, West Lafayette, Indiana (US).
- July 2011 *High Performance Content-Based Matching Using GPUs*, 5th International Conference On Distributed Event-Based Systems (DEBS 2011). New York (US).
- July 2011 *Processing Flows of Information: From Data Stream to Complex Event Processing*, with G. Cugola, Tutorial in the 5th International Conference On Distributed Event-Based Systems (DEBS 2011). New York (US).
- February 2011 *Complex Event Processing on GPU Hardware: an Experience Report*, SMSCom Seminar, Politecnico di Milano, Milano (Italy).
- November 2010 *A Column Generation Approach for the Operator Placement Problem*, Minor Research Topic Seminar, Politecnico di Milano, Milano (Italy).
- July 2010 *TESLA: a Formally Defined Language for Complex Event Processing*, 4th International Conference on Distributed Event Based Systems (DEBS 2010). Cambridge (UK).
- July 2010 *TESLA: a Formally Defined Language for Complex Event Processing*, SMSCom Seminar, Milano (Italy).
- June 2010 *Combining Expressiveness, Efficiency and Scalability in a Complex Event Processing Middleware*, PhDay Politecnico di Milano, Milano (Italy).
- February 2010 *TESLA: a Formally Defined Language for Complex Event Processing*, D-ASAP Meeting, Milano (Italy).
- December 2009 *RACED: an Adaptive Middleware for Complex Event Detection*, 8th International Workshop on Adaptive and Reflective Middleware (ARM 09), Urbana Champaign (US).
- July 2009 *Context Aware Publish-Subscribe: Model, Implementation and Evaluation*, 8th International Symposium on Computers and Communications (ISCC09), Sousse, (Tunisia).
- June 2009 *Context Aware Middleware*, SMSCom Meeting, Como (Italy).

Publications

Papers in International Journals

- [1] Gianpaolo Cugola and Alessandro Margara. SLIM: Service Location and Invocation Middleware for Mobile Wireless Sensor and Actuator Networks. *International Journal of Systems and Service-Oriented Engineering (IJSSOE), Special Issue on "Engineering Middleware for Service-Oriented Computing"*, 1:60–74, 2010.
- [2] Gianpaolo Cugola and Alessandro Margara. Complex Event Processing with T-REX. *Journal of Systems and Software*, 85(8):1709–1728, 2012.
- [3] Gianpaolo Cugola and Alessandro Margara. Low Latency Complex Event Processing on Parallel Hardware. *Journal of Parallel and Distributed Computing*, 72(2):205–218, 2012.
- [4] Gianpaolo Cugola and Alessandro Margara. Processing flows of information: From Data Stream to Complex Event Processing. *ACM Computing Surveys*, 44(3):15:1–15:62, 2012.
- [5] Gianpaolo Cugola and Alessandro Margara. Deployment Strategies for Distributed Complex Event Processing. *Computing*, 95(2):129–156, 2013.
- [6] Alessandro Margara and Gianpaolo Cugola. High-Performance Publish-Subscribe Matching Using Parallel Hardware. *IEEE Transactions on Parallel and Distributed Systems*, 25(1):126–135, 2014.
- [7] Alessandro Margara, Jacopo Urbani, Frank van Harmelen, and Henri Bal. Streaming the Web: Reasoning over Dynamic Data. *Web Semantics: Science, Services and Agents on the World Wide Web*, 25(0):24–44, 2014.
- [8] Gianpaolo Cugola, Alessandro Margara, Matteo Matteucci, and Giordano Tamburrelli. Introducing Uncertainty in Complex Event Processing: Model, Implementation, and Validation. *Computing*, 97(2):103–144, 2015.
- [9] Lorenzo Affetti, Riccardo Tommasini, Alessandro Margara, Gianpaolo Cugola, and Emanuele Della Valle. Defining the execution semantics of stream processing engines. *Journal of Big Data*, 4(1):12, 2017.
- [10] Francesco Bianchi, Alessandro Margara, and Mauro Pezzè. A Survey of Current Trends in Testing Concurrent Software Systems. *IEEE Transactions on Software Engineering*, 4(8):747–783, 2018.
- [11] Alessandro Margara and Guido Salvaneschi. On the Semantics of Distributed Reactive Programming: the Cost of Consistency. *IEEE Transactions on Software Engineering*, 4(11):689–711, 2018.
- [12] Alessandro Margara, Pietro Peronio, Giulia Acconcia, Gianpaolo Cugola, and Ivan Rech. High-accuracy and video-rate lifetime extraction from time correlated single photon counting data on a graphical processing unit. *Review of Scientific Instruments*, 90(10):1–9, 2019.
- [13] Lorenzo Affetti, Alessandro Margara, and Gianpaolo Cugola. TSpool: Transactions on a Stream Processor. *Journal of Parallel and Distributed Computing*, 140(03), 2020.
- [14] Alexander Artikis, Thomas Eiter, Alessandro Margara, and Stijn Vansummeren. Dagstuhl seminar on the foundations of composite event recognition. *SIGMOD Record*, 49(4):24–27, 2021.
- [15] Alessandro Margara, Gianpaolo Cugola, Nicolò Felicioni, and Stefano Cilloni. A model and survey of distributed data-intensive systems. *ACM Computing Surveys*, 56(1), 2023.
- [16] Giovanni Quattrocchi, Davide Cocco, Simone Staffa, Alessandro Margara, and Gianpaolo Cugola. Cromlech: Semi-automated monolith decomposition into microservices. *IEEE Transactions on Services Computing*, pages 1–16, 2024.
- [17] Ana Rubio, Rubén Cantarero, Alessandro Margara, Gianpaolo Cugola, David Villa, and Juan Carlos López. Commonsense reasoning and automatic generation of iot contextual knowledge: An answer set programming approach. *Internet of Things*, 25:100998, 2024.

Papers in International Conferences

- [18] Gianpaolo Cugola, Alessandro Margara, and Matteo Migliavacca. Context-Aware Publish-Subscribe: Model, Implementation, and Evaluation. In *IEEE Symposium on Computers and Communications, ISCC '09*, pages 875–881. IEEE, 2009.
- [19] Gianpaolo Cugola and Alessandro Margara. TESLA: a Formally Defined Event Specification Language. In *Proceedings of the International Conference on Distributed Event-Based Systems, DEBS '10*, pages 50–61. ACM, 2010.

- [20] Alessandro Margara and Gianpaolo Cugola. High Performance Content-Based Matching Using GPUs. In *Proceedings of the International Conference on Distributed Event-Based System*, DEBS '11, pages 183–194. ACM, 2011.
- [21] Giovanni Alli, Luciano Baresi, Andrea Bianchessi, Gianpaolo Cugola, Alessandro Margara, Angelo Morzenti, Carlo Ongini, Emanuele Panigati, Matteo Rossi, Sante Rotondi, Sergio Savaresi, Fabio Alberto Schreiber, Alessandro Sivieri, Letizia Tanca, and Edoardo Vannutelli Depoli. Green Move: Towards Next Generation Sustainable Smartphone-Based Vehicle Sharing. In *Proceedings of the Conference on Sustainable Internet and ICT for Sustainability*, SustainIT '12. IEEE, 2012.
- [22] Gianpaolo Cugola and Alessandro Margara. High-Performance Location-Aware Publish-Subscribe on GPUs. In *Proceedings of the International Conference on Middleware*, Middleware '12, pages 312–331. Springer, 2012.
- [23] Elisabetta Di Nitto, Daniel J. Dubois, and Alessandro Margara. Reconfiguration Primitives for Self-adapting Overlays in Distributed Publish-Subscribe Systems. In *Proceedings of the International Conference on Self-Adaptive and Self-Organizing Systems*, SASO '12, pages 99–108. IEEE, 2012.
- [24] Sebastian Frischbier, Alessandro Margara, Tobias Freudenreich, Patrick Eugster, David Eyers, and Peter Pietzuch. Aggregation for Implicit Invocations. In *Proceedings of the International Conference on Aspect-Oriented Software Development*, AOSD '13, pages 109–120. ACM, 2013.
- [25] Thomas Scharrenbach, Jacopo Urbani, Alessandro Margara, Emanuele Della Valle, and Abraham Bernstein. Seven Commandments for Benchmarking Semantic Flow Processing Systems. In *Proceedings of the Extended Semantic Web Conference*, ESWC '13, pages 305–319. Springer, 2013.
- [26] Jacopo Urbani, Alessandro Margara, Cerial Jacobs, Frank Harmelen, and Henri Bal. DynamiTE: Parallel Materialization of Dynamic RDF Data. In *Proceedings of the International Semantic Web Conference*, ISWC '13, pages 657–672. Springer, 2013.
- [27] Sebastian Frischbier, Erman Turan, Michael Gesmann, Alessandro Margara, David Eyers, Patrick Eugster, Peter Pietzuch, and Alejandro Buchmann. Effective Runtime Monitoring of Distributed Event-Based Enterprise Systems with ASIA. In *Proceedings of the International Conference on Service Oriented Computing and Application*, SOCA '14, pages 41–48. IEEE, 2014.
- [28] Alessandro Margara, Gianpaolo Cugola, and Giordano Tamburrelli. Learning from the Past: Automated Rule Generation for Complex Event Processing. In *Proceedings of the International Conference on Distributed Event-Based Systems*, DEBS '14, pages 47–58. ACM, 2014.
- [29] Alessandro Margara and Guido Salvaneschi. We Have a DREAM: Distributed Reactive Programming with Consistency Guarantees. In *Proceedings of the International Conference on Distributed Event-Based Systems*, DEBS '14, pages 142–153. ACM, 2014.
- [30] Giordano Tamburrelli and Alessandro Margara. Towards Automated A/B Testing. In *Proceedings of Search-Based Software Engineering*, SSBSE '14, pages 184–198. Springer, 2014.
- [31] Jacopo Urbani, Alessandro Margara, Cerial J. H. Jacobs, Spyros Voulgaris, and Herni Bal. AJIRA: a Lightweight Distributed Middleware for MapReduce and Stream Processing. In *Proceedings of the International Conference on Distributed Computing Systems*, ICDCS '14, pages 545–554. IEEE, 2014.
- [32] Gianpaolo Cugola, Alessandro Margara, Mauro Pezzè, and Matteo Pradella. Efficient Analysis of Event Processing Applications. In *Proceedings of the International Conference on Distributed Event-Based Systems*, DEBS '15, pages 10–21. ACM, 2015.
- [33] Giovanni Denaro, Alessandro Margara, Mauro Pezzè, and Mattia Vivanti. Dynamic Data Flow Testing of Object Oriented Systems. In *Proceedings of the International Conference on Software Engineering*, ICSE '15, pages 947–958. IEEE, 2015.
- [34] Lorenzo Affetti, Alessandro Margara, and Gianpaolo Cugola. Flowdb: Integrating stream processing and consistent state management. In *Proceedings of the International Conference on Distributed Event Based Systems*, DEBS '17, pages 134–145. ACM, 2017.
- [35] Alessandro Margara, Daniele Dell'Aglio, and Abraham Bernstein. Break the windows: Explicit state management for stream processing systems. In *Proceeding of the International Conference on Extending Database Technology*, EDBT '17, pages 482–485. ACM, 2017.
- [36] Daniele Rogora, Michele Papalini, Koorosh Khazaei, Alessandro Margara, Antonio Carzaniga, and Gianpaolo Cugola. High-throughput subset matching on commodity gpu-based system. In *Proceedings of the European Conference on Computer Systems*, EuroSys '17, pages 513–526. ACM, 2017.

- [37] Alessandro Margara, Gianpaolo Cugola, Dario Collavini, and Daniele Dell’Aglio. Efficient Temporal Reasoning on Streams of Events with DOTR. In *Proceedings of the Extended Semantic Web Conference*, ESWC ’18, pages 384–399. Springer, 2018.
- [38] Mirko Köhler, Nafise Eskandani, Pascal Weisenburger, Alessandro Margara, and Guido Salvaneschi. Rethinking safe consistency in distributed object-oriented programming. *Proceedings of the ACM on Programming Languages*, 4(OOPSLA), 2020.
- [39] Mario Scrocca, Riccardo Tommasini, Alessandro Margara, Emanuele Della Valle, and Sherif Sakr. The kaiju project: Enabling event-driven observability. In *Proceedings of the International Conference on Distributed and Event-Based Systems*, DEBS ’20, page 85–96. ACM, 2020.
- [40] Simone Staffa, Giovanni Quattrocchi, Alessandro Margara, and Gianpaolo Cugola. Pangaea: Semi-automated monolith decomposition into microservices. In *Proceedings of the International Conference on Service Oriented Computing*, ICSOC ’21, 2021.
- [41] Luca De Martini, Alessandro Margara, and Gianpaolo Cugola. Debs grand challenge: Analysis of market data with noir. In *Proceedings of the International Conference on Distributed and Event-Based Systems*, DEBS ’22. ACM, 2022.
- [42] Vladimir Sladojević, Sebastian Frischbier, Alexander Echler, Mario Paic, and Alessandro Margara. Deriving a realistic workload model to simulate high-volume financial data feeds for performance benchmarking. In *Proceedings of the International Conference on Distributed and Event-Based Systems*, DEBS ’22. ACM, 2022.

Papers in International Workshops

- [43] Gianpaolo Cugola and Alessandro Margara. RACED: an Adaptive Middleware for Complex Event Detection. In *The 8th Workshop on Adaptive and Reflective Middleware*, ARM ’09, pages 1–6. ACM, 2009.
- [44] David Eyers, Tobias Freudenreich, Alessandro Margara, Sebastian Frischbier, Peter Pietzuch, and Patrick Eugster. Living in the Present: On-The-Fly Information Processing in Scalable Web Architectures. In *Proceedings of the International Workshop on Cloud Computing Platforms*, CloudCP ’12, pages 6:1–6:6. ACM, 2012.
- [45] Alessandro Margara and Guido Salvaneschi. Ways to React: Comparing Reactive Languages and Complex Event Processing. In *Workshop on Reactivity, Events, and Modularity*, REM ’13, 2013.
- [46] Alessandro Margara, Mauro Pezzè, Igor Pivkin, and Mauro Santoro. Towards an Engineering Methodology for Multi-Model Scientific Simulations. In *Proceedings of the International Workshop on Software Engineering for High Performance Computing in Science*, SE4HPCS ’15, pages 51–55. IEEE, 2015.
- [47] Alessandro Margara and Guido Salvaneschi. Consistency types for safe and efficient distributed programming. In *Proceedings of the Workshop on Formal Techniques for Java-like Programs*, FTFJP’17. ACM, 2017.
- [48] Pietro Daverio, Hassan Nazeer Chaudhry, Alessandro Margara, and Matteo Rossi. Temporal reasoning on large-scale graphs. In *Workshop Reasoning about Actions and Events over Streams (RACES)*, RACES ’20, 2020.
- [49] Mirko Köhler, Nafise Eskandani Masoule, Alessandro Margara, and Guido Salvaneschi. Consyst: Tunable, safe consistency meets object-oriented programming. In *Proceedings of the International Workshop on Formal Techniques for Java-Like Programs*, FTFJP 2020, page 15–17. ACM, 2020.
- [50] Jean-Pierre Münch, Florian Weinacker, Guido Salvaneschi, and Alessandro Margara. Accountable decentralized event reasoning using blockchains. In *Workshop Reasoning about Actions and Events over Streams (RACES)*, RACES ’20, 2020.
- [51] Pietro Daverio, Hassan Nazeer Chaudhry, Alessandro Margara, and Matteo Rossi. Temporal pattern recognition in graph data structures. In *International Conference on Big Data (Workshop on Real-Time Stream Analytics, Stream Mining, CER/CEP & Stream Data Management in Big Data)*, BigData ’21, 2021.
- [52] Alessio Fino, Alessandro Margara, Gianpaolo Cugola, Marco Donadoni, and Edoardo Morassutto. Rstream: Simple and efficient batch and stream processing at scale. In *International Conference on Big Data (Workshop on Real-Time Stream Analytics, Stream Mining, CER/CEP & Stream Data Management in Big Data)*, BigData ’21, 2021.
- [53] Luca Barbierato, Daniele Salvatore Schiera, Rossano Scoccia, Alessandro Margara, Lorenzo Bottacchi, and Edoardo Patti. Comet: Co-simulation of multi-energy systems for energy transition. In

Proceedings of the International Workshop on Rising ICT Solutions for Smart Grids as Multi-Energy Systems, co-located to COMPSAC 2022, ICT4SmartGrid '22. IEEE, 2022.

- [54] Luca De Martini, Alessandro Margara, and Gianpaolo Cugola. Making data analysis more efficient with noir, 2023. Abstract at BigHPC2023: Special Track on Big Data and High-Performance Computing.
- [55] Kinga Anna Marek, Luca De Martini, and Alessandro Margara. Nubes: Object-oriented programming for stateful serverless functions. In *Proceedings of the International Workshop on Serverless Computing, WoSC '23*, page 30–35, New York, NY, USA, 2023. ACM.

Tutorials in International Conferences

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